CONFERENCE OF THE COMMITTEE ON DISARMAMENT

CCD/509
28 July 1976
Original: ENGLISH

LETTER DATED 28 JULY 1976 FROM MR. LEIF BLOMQVIST OF THE PERMANENT MISSION OF FINLAND TO THE SPECIAL REPRESENTATIVE OF THE SECRETARY-GENERAL TO THE CONFERENCE OF THE COMMITTEE ON DISARMAMENT TRANSMITTING A WORKING PAPER BY THE GOVERNMENT OF FINLAND

ON FINNISH CAPABILITIES OF SEISMOLOGICAL DETECTION OF UNDERGROUND NUCLEAR EXPLOSIONS

Following the decision of the Conference of the Committee on Disarmament to establish an Ad Hoc Group of Scientific Experts to consider international co-operative measures to detect and identify seismic events, I have the honour, upon the instruction of my Government, to forward to you herewith a working paper outlining "Finnish capabilities of seismological detection of underground nuclear explosions". I would be most grateful to you if the working paper could be distributed to the Members of the Conference of the Committee on Disarmament as an official document.

(Signed) Leif Blomqvist
Counsellor

WORKING PAPER BY THE GOVERNMENT OF FINLAND TO THE CCD

Finnish capabilities of seismological detection of underground nuclear explosions

As a consequence of its consistent support for the efforts to achieve a comprehensive ban of nuclear weapon tests, which it considers as one of the most important goals of present arms limitation negotiations, the Finnish Government has for a number of years endeavoured to make a contribution to the pursuit of an effective verification of such a treaty by seismological means.

Finland has actively taken part in co-operation with Danish, Norwegian and Swedish seismologists in the field of seismological detection (the so called Nordic Detection Club). Finnish seismologists have participated in seminars on detection seismology arranged in different Nordic countries and done research work in seismic institutions in Norway and Sweden. The Finnish Government therefore welcomes the Swedish proposal to form an expert group within the framework of the CCD to study t question of establishing a world-wide seismologic control network.

In its reply to the request of the Secretary-General relating to the creation a world-wide exchange of seismological data (United Nations General Assembly resolution 2604 A (XXIV)) Finland declared its preparedness to participate in such an exchange and gave detailed information on its national capabilities for doing so

Since that time Finland has increased its detection capability both technologically and in research.

During the past five years the development of methods and means for seismic verification in Finland has endeavoured to elaborate new event identification techniques, to demonstrate and map the favourable seismic recording conditions prevailing in most of Finland, and to design and construct a new small-scale array station producing digital data from short-period seismometers, which are located at as great a distance as possible from cultural noise disturbance. In addition the several conventional high-quality stations in Finland are making data internationall available for use in seismic research.

Research on seismic event identification

Since 1972 a study has continued on the use of waveform and spectrum of the seismic P-wave for event classification. In spite of the demonstrated superiority of the M_s:m_b discriminant employing both body waves and surface waves it is felt th there are several reasons for continuing to develop new discriminants independent f the M_s:m_b. The combination of several independent discriminants increases the

discrimination ratio. The problem of having mixed signals is less common for P-waves than for surface waves, and evasion of identification might be more difficult when several different discriminants are used. The new discriminants should preferably have a clear physical meaning related to the difference of explosion and earthquake sources.

Most of the suggested P-wave discriminants have employed two characteristics of the P-wave signal, its complexity and its spectral contents. Of these two the use of spectral contents seems to be less susceptible to evasion by exploding multiple explosions, and to have a better discriminating capability according to several studies. The explosion source which has the smaller dimensions in space and time sends out P-waves which have a higher cut-off frequency, i.e. a broader spectrum than that of the earthquake generated P-waves. Our study shows (ref 1) that the significant regional variation of the absorption of high-frequency seismic waves in the Earth can regionally modify the spectrum of P-waves. Use of any spectral discriminant employing energy up to frequencies of several H_z then requires extensive regionalisation, which may be difficult to achieve.

To use the spectral properties of the P-waves for discrimination as low frequencies as possible should be used. The optimum range appears to be 0.2 to 2 H_z. An approach which was studied (ref 2) was to make a correction for the recording distortion in an as broad frequency range as possible and then to compute the width of the primary P-wave pulse on the resulting trace. Since a broad-band seismograph was actually simulated the measurements were made in the suitable frequency band and the sensitivity to variation of absorption decreased. The capability to separate earthquakes and explosions was slightly inferior to the M_s:m_b discriminant. For one set of events having a wide geographical variation, depths less than 100 km and in the magnitude range 4.5 to 6.1 (m_b), out of 41 earthquakes 38 were classified as earthquakes, 2 were marginal and for 1 no measurement could be done. All 10 explosions were correctly classified.

The broadening of the frequency band worsens the signal to the noise ratio. The described broad-band measurements were done using data recorded by short-period seismographs at the large seismic arrays, such as the NORSAR array in Norway utilizing the signal to noise enhancement achieved in aligning and summing signals from over 100 sensors. The body wave (m_b) magnitude at which for 90 per cent of the detected events occurring at that magnitude the measurements could be made, was observed to be 4.5 plus or minus 0.2.

Determination of the characteristic event duration from the width of the P-wave pulse through broad-band signal measurements appears to offer possibilities of defining a usable discriminant, sufficiently independent of the M_s:m_b discriminant and applicable to magnitudes low enough, that it may be used in combination with the M_s:m_b. Special broad-band instrumention may not be necessary, more important may be the capability of a large seismic array to suppress ground noise. We thus anticipate further progress in the field of event identification.

Recording conditions and the new short-period array in Finland

In a recent study (ref 3) the event detection capabilities of conventional seismic stations in Fennoscandia were estimated. Using the events and magnitudes reported by an international center, it was determined for each event whether or not the station in question had detected the event in question. Thus a detection curve was obtained, giving the probability of detection at a given magnitude. The best detection capability among the stations studied was reached by a station in central Finland. For events in the teleseismic range the 90 per cent incremental detection threshold, i.e. the body wave magnitude (m_b) at which 90 per cent of the total events occurring at that magnitude are detected, was for that station 5.1. The 50 per cent threshold is 4.5. The study concluded that the detection capability generally increases (the noise level decreases) with increasing distance from the North Atlantic Ocean, the stations at or near the ocean coast having 90 per cent detection thresholds from 5.8 to 6.1. In another study (ref 4) it was shown that to achieve optimum detection capability, a station should be situated at least 150 km away from the shores of the Baltic Sea or its gulfs.

In a study using data from arrays in Fennoscandia (ref 5) it was concluded that the heterogeneity of the crust and upper mantle is somewhat less in southern Finland situated in the eastern half of the Baltic shield, than at the western boundary of the shield. The conditions of array operation improve somewhat with a decreasing degree of heterogeneity.

A new small short-period seismic array has been constructed on a site in central Finland fulfilling the noise criteria and supposed to be geologically homogeneous. The array began test operation in the autumn 1975. It employs digital radio link transmission and has a very compact instrumentation designed and built in Finland using C-MOS integrated digital circuits. Since the number of sensors is small (though the array diameter is over 100 km) usual array processing would give only a small signal to noise enhancement. Records given by each sensor were analysed

separately and for events in the teleseismic range (30-90 degrees) the 90 per cent and 50 per cent incremental detection thresholds were found to be 4.7 and 4.0 (m_b), respectively. Some form of array processing may slightly improve these figures, which in any case are preliminary.

Special care has been taken to ensure a broad dynamic range in recording. Due to its good detection capability the array is expected to be able to make a useful contribution, even in an international framework, to detection and location of small seismic events. A later implementation of long-period or broad-band seismographs is planned.

A detailed study has been made on several storms of microseisms, or ground noise (ref 6). Long-period data from a large seismic array were used. Such studies may be useful for mapping the temporal and directional variation of the long-period noise limiting the surface wave detection capability.

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CONFERENCE OF THE COMMITTEE ON DISARMAMENT

CCD/510
3 August 1976

Original: ENGLISH

NIGERIA

Working paper on Conclusions of the Mid-Term Review of the Disarmament Decade

A. Valuation and Assessment of the Tasks and Duties of the CCD during the Disarmament Decade

1. The continuing diversion of human and material resources from peaceful economic and social pursuits to military and armament purposes is contrary to the purposes and objectives of the Disarmament Decade.

2. The CCD, while acknowledging that during the review period some progress has been made in reaching agreements on collateral measures of disarmament, is concerned at the meagre achievements of the Disarmament Decade in terms of truly effective disarmament and arms limitation agreements under strict and effective international control.

3. The primary obligation of the CCD during the Disarmament Decade remains the adoption of a comprehensive programme dealing with all aspects and priorities of the problem of the cessation of the arms race and general and complete disarmament under effective international control so as to negotiate specific arms control and disarmament agreements, particularly in the field of nuclear weapons and other weapons of mass destruction, beginning with CTB and CWB.

4. The CCD, having adopted a comprehensive programme and viable method of work, should decide upon a precise time-table and schedule for the consideration and negotiation of specific instruments, bearing in mind relevant United Nations General Assembly resolutions, such as res. 2661c(XXV), and all proposals on specific issues already put before it.

5. The CCD should forge closer links with the United Nations General Secretariat in order to fulfil its responsibilities to the United Nations more efficiently.

B. Action to be taken this Session

The CCD should decide that it will work out at its 1977 Spring Session "a comprehensive programme dealing with all aspects of the problem of the cessation of the Arms Race and General and Complete Disarmament under effective international control, which would provide the Conference with a guideline to chart the course of its further work and its negotiations" and "to accelerate the pace of its efforts to negotiate truly effective disarmament and arms limitation agreements."

CONFERENCE OF THE COMMITTEE ON DISARMAMENT

CCD/511
3 August 1976

ENGLISH
Original: RUSSIAN

UNION OF SOVIET SOCIALIST REPUBLICS

Draft agreement on the prohibition of the development and manufacture of new types of weapons of mass destruction and new systems of such weapons

The States Parties to this Agreement,

Guided by the interests of strengthening international peace and security,

Desiring to contribute to saving mankind from the danger of the use of new means of warfare, to limiting the arms race and to bringing about disarmament,

Recognizing that modern science and technology have reached a level where a serious danger arises of the development of new, still more destructive types of weapons of mass destruction and of new systems of such weapons,

Conscious that the development and manufacture of such weapons are fraught with the most serious consequences for the peace and security of nations,

Bearing in mind that recent years have seen the conclusion of a number of important agreements concerning limitation of the arms race and disarmament, including those related to the prohibition of weapons of mass destruction,

Expressing the profound interest of States and peoples in the adoption of measures to prevent the use of the achievements of modern science and technology for the development and manufacture of the above-mentioned weapons of mass destruction,

Desiring to promote the strengthening of confidence among nations and the further improvement of the international situation,

Seeking to contribute to the realization of the lofty purposes and principles of the Charter of the United Nations,

Having agreed on the following:

Article I

1. Each State Party to this Agreement undertakes not to develop or manufacture new types of weapons of mass destruction or new systems of such weapons, including those utilizing the latest achievements of modern science and technology. New types of weapons of mass destruction and new systems of such weapons shall include: (to be specified through negotiations on the subject).

2. In the event that new areas of development and manufacture of weapons of mass destruction and systems of such weapons not covered by this Agreement emerge after the entry into force of the Agreement, the Parties shall conduct negotiations with a view to extending the prohibition provided for in this Agreement to cover such potential new types and systems of weapons.

3. Each State Party to this Agreement undertakes not to assist, encourage or induce any other State, group of States or international organizations to engage in activities contrary to the provisions of paragraph 1 of this article.

Article II

Each State Party to this Agreement undertakes, in accordance with its constitutional procedures, to take the necessary measures to prohibit and prevent any activities contrary to the provisions of this Agreement, within the territory of such State or in any territory under its jurisdiction or under its control, wherever it may be.

Article III

1. In the event that any State Party to this Agreement has any suspicions that another State Party has violated the provisions of this Agreement, the Parties concerned undertake to consult one another and co-operate in solving the problems which arise.

2. If the consultations referred to in paragraph 1 of this article fail to produce results mutually acceptable to the Parties concerned, the State which has such suspicions may lodge a complaint with the Security Council of the United Nations. Such complaint must include evidence confirming its validity, as well as a request for its consideration by the Security Council.

3. Each State Party to this Agreement undertakes to co-operate in carrying out any investigation which the Security Council may initiate, in accordance with the provisions of the Charter of the United Nations, on the basis of the complaint received by the Council. The Security Council shall inform the States Parties to the Agreement of the results of the investigation.

4. Each State Party to this Agreement undertakes to provide or support assistance, in accordance with the Charter of the United Nations, to any State Party to the Agreement which so requests, if the Security Council decides that such State Party has been exposed to danger as a result of violation of the Agreement.

Article IV

1. Nothing in this Agreement shall be interpreted as affecting the inalienable right of all the States Parties to the Agreement to develop and use scientific research and discoveries exclusively for peaceful purposes without any discrimination.

2. The States Parties to this Agreement undertake to facilitate scientific and technological co-operation in the use of the latest achievements and discoveries of science and technology for peaceful purposes.

Article V

Each State Party to this Agreement undertakes to pursue in good faith negotiations on effective measures to limit the arms race in all its forms and put an end to it, as well as on a treaty on general and complete disarmament under strict and effective international control.

Article VI

1. Any State Party may propose amendments to this Agreement. Each proposed amendment shall be submitted to the depositary Governments and circulated by them to all Parties to the Agreement, which shall inform the depositary Governments of acceptance or rejection as soon as possible after its receipt.

2. The amendment shall enter into force for each State Party accepting the amendment upon its acceptance by a majority of the States Parties to the Agreement, including the depositary Governments, and thereafter for each remaining State Party on the date of its acceptance of the amendment.

Article VII

1. This Agreement shall be of unlimited duration.

2. Each State Party to this Agreement shall, in the exercise of its national sovereignty, have the right to withdraw from the Agreement if it decides that extraordinary circumstances, related to the subject-matter of the Agreement, have jeopardized its supreme interests. It shall give notice of such withdrawal to all other States Parties to the Agreement and to the Security Council of the United Nations three months in advance. Such notice shall include a statement of the extraordinary circumstances it regards as having jeopardized its supreme interests.

Article VIII

1. This Agreement shall be open to all States for signature. Any State which does not sign the Agreement before its entry into force in accordance with paragraph 3 of this article may accede to it at any time.

2. This Agreement shall be subject to ratification by signatory States. Instruments of ratification and accession shall be deposited with the Governments of ....., which are hereby designated the depositary Governments.

3. This Agreement shall enter into force upon the deposit of the instruments of ratification by ..... Governments, including the Governments designated the depositary Governments of the Agreement.

4. For States whose instruments of ratification or accession are deposited subsequent to the entry into force of this Agreement, it shall enter into force on the date of the deposit of their instruments of ratification or accession.

5. The depositary Governments shall promptly inform all signatory and acceding States of the date of each signature, the date of deposit of each instrument of ratification or accession and the date of the entry into force of this Agreement, and of the receipt of other notices.

6. This Agreement shall be registered by the depositary Governments pursuant to Article 102 of the Charter of the United Nations.

Article IX

This Agreement, the Chinese, English, French, Russian and Spanish texts of which are equally authentic, shall be deposited in the archives of the depositary Governments. Duly certified copies of the Agreement shall be transmitted by the depositary Governments to the Governments of the signatory and acceding States.

IN WITNESS WHEREOF the undersigned, duly authorized, have signed this Agreement.

DONE in ..... . copies, at ..... on the .... day of ...., ...

CONFERENCE OF THE COMMITTEE ON DISARMAMENT

CCD/512
6 August 1976

Original: ENGLISH

THE UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND

Draft convention on the prohibition of the development, production and stockpiling of chemical weapons and on their destruction

The States Parties to this Convention

Agreeing that the existence of chemical weapons represents a threat to mankind, and that chemical discoveries should be used only for the benefit of humanity,

Concerned that advances in science and technology may lead to the development of new generations of chemical weapons,

Convinced that the prohibition of the development, production and stockpiling of chemical weapons and their elimination, through effective measures, is a necessary step towards the achievement of general and complete disarmament under strict and effective international control,

Recognizing the important significance of the Geneva Protocol of 17 June 1925 for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, and conscious of the contribution which the said Protocol has already made, and continues to make, to mitigating the horrors of war,

Reaffirming their adherence to the principles and objectives of that Protocol and calling upon all States to comply strictly with them,

Recalling that each State Party to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on

Their Destruction, in Article IX of that Convention, affirmed the recognized objectives of effective prohibition of chemical weapons and, to this end, undertook to continue negotiations in good faith with a view to reaching early agreement on effective measures for the prohibition of their development, production and stockpiling and for their destruction, and on appropriate measures concerning equipment and means of delivery specifically designed for the production or use of chemical weapon agents,

Desiring to contribute to the strengthening of confidence between peoples and the general improvement of the international atmosphere,

Have agreed as follows:

ARTICLE I

Each State Party to this Convention undertakes never, in any circumstances, to develop, produce, or otherwise acquire, or use:

a. lethal chemical agents and other toxic chemicals agents (of a nature and intended primarily to cause long-term physiological harm to human beings), of types and in quantities that have no justification for protective or other peaceful purposes;

b. munitions, equipment or systems designed to deliver such agents for hostile purposes or in armed conflict.

ARTICLE II

1. Notwithstanding the provisions of Article XVI, each signatory or acceding State undertakes on signature or accession to the Convention, whether or not it has entered into force:

a. to declare whether or not it is in possession of the

agents, munitions, equipment and systems specified in Article I;

b. to supply information about the type and quantity of the agents specified in /rticle I in its possession;

c. to supply information regarding all production facilities on its territory capable of producing the agents, munitions, equipment and systems specified in Article I;

d. to supply information about the type and quantity of the agents specified in Article I which it produces for protective or other peaceful purposes and the location of the factories producing these agents and thereafter to render an annual return of similar information;

e. to supply information as to which national organisation or authority is charged with collecting the information referred to in sub-paragraphs b.c. and d. of this paragraph and ensuring in accordance with Article V that public and private agencies and factories comply with the Convention from its entry into force.

2. The declaration and information referred to in sub-paragraphs a. to e. of paragraph 1 shall be communicated to the /Depositary/ until the Consultative Committee is established in accordance with Article VIII and thereafter to that Committee. The /Depositary/ or the Committee as the case may be shall promptly circulate the declaration and information to /all signatory and acceding States/ /all States entitled to become party to the Convention/.

ARTICLE III

Each signatory or acceding State undertakes on signature or accession to this Convention, whether or not it has entered into force:

a. to close down, dismantle or convert to peaceful purposes any factories producing the agents specified in Article I;

b. not to convert from production for peaceful purposes any of the factories listed in response to Article II, 1,d,;

c. not to construct any new factories for the production of the agents specified in Article I of types and in quantities other than those required for peaceful purposes;

d. to close down, dismantle or convert to conventional purposes factories or facilities producing or filling those munitions, equipment or systems specified in Article I.

ARTICLE IV

The undertakings accepted by Signatories upon signature shall cease to apply if this Convention does not enter into force within ..... years of the date when the Convention was opened for signature.

ARTICLE V

Each State Party to this Convention shall, in accordance with its constitutional processes, take any necessary measures to prohibit and prevent the development, production, stock-piling, acquisition or retention of the agents and munitions equipment and systems, specified in Article I of the Convention within the territory of such state under its jurisdiction or

under its control anywhere.

ARTICLE VI

Each State Party to this Convention undertakes not to transfer to any recipient whatsoever directly or indirectly and not in any way to assist, encourage or induce any State, group of States or international organisation to manufacture or otherwise acquire any of the agents, munitions equipment or systems specified in Article I of the Convention.

ARTICLE VII

Each State Party to this Convention possessing agents specified in Article I undertakes to destroy or convert them to peaceful uses under international observation as provided for in Article IX d. according to a phased programme agreed by the Consultative Committee. Each State Party to this Convention possessing stockpiles of munitions equipment or systems specified in Article I undertakes to convert them to conventional use or to destroy them.

ARTICLE VIII

States Parties to the Convention undertake to establish a Consultative Committee from among themselves to oversee the working of this Convention. The functions of the Committee shall include the following:

a. to analyse and evaluate periodic reports and statistical and other information submitted by each State Party in accordance with the provisions of Article II, 1, b., c. and d.

b. to call for such supplementary information under Article II, 1, d. as they consider necessary;

c. to request information and conduct enquiries if asked to do so by a State Party;

d. to verify the destruction of stockpiles and to conduct other inspections in accordance with Articles VII, IX and X;

e. to send notification and reports to all States Parties following verification procedures;

f. to consult and co-operate with the national organisation or authority referred to in Article II, 1, e.

ARTICLE IX

Each State Party to this Convention undertakes to accept:

a. inspection within six months of the entry into force of the Convention by persons appointed by the Consultative Committee of any factory formerly producing the agents specified in Article I, to ensure that it had ceased such production; such personnel to be allowed access into the buildings and to take samples from the environment;

b. the employment and periodic inspection of tamper indicating seals on the doors, control panels and other designated locations of former military chemical agent factories which have not been demolished or converted to peaceful uses and former chemical munitions factories which have not been demolished or converted to conventional uses;

c. /up to ten/ /a number of/ on-site inspections each year by the persons appointed by the Consultative Committee of chemical factories to be selected from those listed under Article II. The factories shall be examined to ensure that they are not producing agents specified in Article I. 1.d. The inspectors

shall be given such access to the factories as is necessary to perform their tasks and be allowed to take such samples as the Consultative Committee has agreed are necessary;

d. in the case of States possessing agents, munitions, equipment and systems specified in Article I inspection by persons appointed by the Consultative Committee who shall be given such access to the destruction process as the Consultative Committee agree is necessary for the task of verification.

ARTICLE X

1. States Parties to this Convention undertake to consult one another directly or through the Consultative Committee and to co-operate in solving any problems which may arise in relation to the objective of, or in the application of, the provisions of the Convention. Any State Party which suspects that any other State Party is acting in breach of obligations deriving from the provisions of the Convention may request directly or through the Consultative Committee that State Party to provide explanation. The complaining Party may also call for a special investigation which may involve on-site inspection to be carried out by the Consultative Committee or by persons appointed by it. Each State Party agrees to accept such on-site inspection which the Consultative Committee may consider necessary.

2. Nothing in this Article shall detract from the right of any State Party to lodge a complaint with the Security Council of the United Nations.

ARTICLE XI

Nothing in this Convention shall be interpreted as in any way limiting or detracting from the obligations assumed by any State under the Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases and of Bacteriological Methods of Warfare, signed at Geneva on 17 June 1925 or under the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons opened for signature on 10 April 1972.

ARTICLE XII

1. Each State Party to this Convention undertakes to facilitate and has the right to participate in the fullest possible exchange of equipment, materials and scientific and technological information for the use of chemical agents for peaceful purposes. Parties to the Convention in a position to do so shall also co-operate in contributing individually or together with other States or international organisations in the further development and application of scientific discoveries in the field of chemistry for peaceful purposes and for therapy and prophylaxis against chemcial agents.

2. This Convention shall be implemented in a manner designed to avoid hampering the economic or technological development of States Parties to the Convention or international co-operation in the field of peaceful chemical activities.

ARTICLE XIII

Any State Party may propose amendments to this Convention. Amendments shall enter into force for each State Party accepting the amendments upon their acceptance by a majority of the States Parties to the Convention and thereafter for each

remaining State on the date of acceptance by it of the amendments.

ARTICLE XIV

Five years after the entry into force of this Convention, or earlier if it is requested by a majority of Parties to the Convention by submitting a proposal to this effect to the /Depositary/, a conference of States Parties to the Convention shall be held at Geneva, Switzerland, to review the operation of the Convention with a view to ensuring that the purposes of the preamble and the provisions of the Convention are being realised. Such review shall take into account any new scientific and technological developments relevant to the Convention.

ARTICLE XV

1. This Convention shall be of unlimited duration.

2. Each State Party to this Convention shall in exercising its national sovereignty have the right to withdraw from the Convention if it decides that extraordinary events, related to the subject matter of the Convention, have jeopardised the supreme interests of its country. It shall give notice of such withdrawal to all other States Parties to the Convention and to the United Nations Security Council three months in advance. Such notice shall include a statement of the extraordinary events it regards as having jeopardised its supreme interests.

ARTICLE XVI

1. This Convention shall be open to all States for signature. Any State which does not sign the Convention before its entry into force in accordance with paragraph 3 of this Article may accede to it at any time.

2. This Convention shall be subject to ratification by the signatory States. Instruments of ratification and instruments of accession shall be deposited with the /Depositary/.

3. This Convention shall enter into force after the deposit of instruments of ratification by ..... governments.

4. For States whose instruments of ratification or accession are deposited subsequent to the entry into force of this Convention, it shall enter into force on the date of the deposit of their instruments of ratification or accession.

5. The /Depositary/ shall promptly inform all signatory and acceding States of the date of each signature, the date of deposit of each instrument of ratification or of accession and the date of the entry into force of this Convention, and of the receipt of other notices.

6. This Convention shall be registered by the /Depositary/ pursuant to Article 102 of the Charter of the United Nations.

ARTICLE XVII

This Convention, the English, Russian, French, Spanish, Arabic and Chinese texts of which are equally authentic, shall be deposited in the archives of the /Depositary/. Duly certified copies of the Convention shall be transmitted by the /Depositary/ to the governments of the signatory and acceding States.

CONFERENCE OF THE COMMITTEE ON DISARMAMENT

CCD/512/Corr.1
16 August 1976

ENGLISH ONLY

THE UNITED KINGDOM OF GREAT BRITAIN AND
NORTHERN IRELAND

Draft convention on the prohibition of the development, production and stockpiling of chemical weapons and on their destruction

CORRIGENDUM

On page 6, last line, delete "1.d" after "Article I".

GE.76-88757

CONFERENCE OF THE COMMITTEE ON DISARMAMENT CCD/513
6 August 1976

Original: ENGLISH

FIRST PROGRESS REPORT TO THE CONFERENCE OF THE COMMITTEE ON DISARMAMENT BY THE AD HOC GROUP OF SCIENTIFIC EXPERTS TO CONSIDER INTERNATIONAL CO-OPERATIVE MEASURES TO DETECT AND TO IDENTIFY SEISMIC EVENTS

In pursuance of the decision of the CCD on 22 July 1976 the Ad Hoc Group of Scientific Experts to Consider International Co-operative Measures to Detect and to Identify Seismic Events held its first session from 2-6 August 1976 in Geneva and submits hereby its first progress report, for consideration by the CCD

1) Scientific experts and representatives from the following Member States of the CCD participated in the first session: Canada, Egypt, Federal Republic of Germany, India, Italy, Japan, Netherlands, Nigeria, Romania, Sweden, United Kingdom and the United States of America.

2) In accordance with the above decision Australia, Belgium, Denmark, Finland, and Norway had been invited and are participating in the work of the Ad Hoc Group through scientific experts and representatives. (A list of participants is attached).

3) At the first meeting Dr Ulf Ericsson of Sweden was elected to serve as Chairman of the Ad Hoc Group.

4) The Group agreed upon, inter alia, a provisional Table of Contents of its Final Report, the main headings of which read as follows:

1) Summary.

2) Introduction.

3) Data and procedures to be used for detection and location of seismic events and for obtaining identification parameters.

4) Selection of seismographic stations for a global network.

5) Data exchange between selected stations and data centres.

6) Data centres for detection and location of seismic events and for reduction of identification parameters.

7) Estimated cost to establish and operate the specified monitoring system.

8) Estimated capability of the specified monitoring system.

9) Proposal for experimental exercises.

Appendix: Problems with the estimation of yields from seismic signals.

5) With a view to completing its work expeditiously and no later tha January 1978 the Group adopted a flexible time schedule and decided to hold its next two sessions in October 1976 and March 1977.

6) The Ad Hoc Group agreed upon a draft Agenda for the next session and designated groups of experts from among its members to prepare working papers for the next session.

7) The Ad Hoc Group noted that the efficiency of its work in the assessment of present and planned seismographic installations and data handling facilities would be greatly increased if the co-operation of CCD Member States and other States not represented in the Ad Hoc Group could be ensured.

8) The Ad Hoc Group considered it necessary to obtain, before its session in October 1976, the services of a qualified scientific secretary to ensure adequate editing and handling of its working papers and drafts. Dr Frode Ringdal of Norway was asked and has agreed to undertake the task.

9) The Ad Hoc Group decided to hold its next session from 11-15 October 1976 at the Palais des Nations, Geneva.

List of Scientific Experts and Representatives participating in the First Session of the Ad Hoc Group of Scientific Experts to Consider International Co-operative Measures to Detect and to Identify Seismic Events

AUSTRALIA	
Mr. K. I. Gates	Counsellor, Permanent Mission of Australia to the United Nations at Geneva
BELGIUM	
Mr. J. M. van Gils	Chief, Seismological Service to the Royal Belgian Observatory
CANADA	
Mr. P. W. Basham	Government Research Scientist, Ministry of Energy Mines and Resources, Ottawa
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On definitions of new types of weapons of mass destruction and new systems of such weapons

The draft agreement on the prohibition of new types of weapons of mass destruction and new systems of such weapons, submitted by the Union of Soviet Socialist Republics at the thirtieth session of the United Nations General Assembly (CCD/511), provides that the new types of weapons of mass destruction and the new systems of such weapons to be prohibited are to be specified through negotiations on the subject (article I, paragraph 1 of the draft).

Further to the preliminary considerations on the question of the definition of new types and systems of weapons of mass destruction, as expressed by the Soviet experts at the 1976 spring session, the present working paper proposes the following draft definitions:

I. New types of weapons of mass destruction

New types of weapons of mass destruction shall include types of weapons which are based on qualitatively new principles of action and whose effectiveness may be comparable with or surpass that of traditional types of weapons of mass destruction.

The term "based on qualitatively new principles of action" shall be understood to mean that the means of producing the effect or the target or nature of the effect of the weapon is new.

The term "means of producing the effect" shall be understood to mean the specific type of physical, chemical or biological action.

The term "target" shall be understood to mean the type of target, ranging from vitally important elements of the human organism to elements of man's ecological and geophysical environment, and also to networks and installations which are vitally important for human existence.

The term "nature of the effect" shall be understood to mean the new type of destruction which leads either to immediate mass annihilation or to the gradual extinction of large groups of the population.

II. New systems of weapons of mass destruction

New systems of weapons of mass destruction (apart from systems which may be developed in future when research on and development of new types of weapons of mass destruction has been completed) shall include systems of weapons which assume the character of weapons of mass destruction as a result of the use of new technical elements in their strike or logistic devices.

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Brief explanations of the approach underlying the above-mentioned definitions are annexed hereto.

Brief explanations of the approach underlying the definitions of new types of weapons of mass destruction and new systems of such weapons

1. New types of weapons of mass destruction

The principle of action of any weapon is reflected in the means of producing its effect, and in the target and nature of its effect. A list of the classification criteria characterizing any type of weapon of mass destruction is given below. A type of weapon may be considered as a new type of weapon of mass destruction if it is new in respect of at least one of these three criteria -- i.e., the means, target or nature of its effect.

2. Classification criteria

(a) Means of producing the effect

Physical: the direct action of explosions (blast, thermal, etc.), shock waves, acoustic waves, electro-magnetic waves in the radio range (non-ionizing radiation and equivalent radiations of charged particles), electro-magnetic waves in the optical range (light and infra-red radiations), hard electro-magnetic radiations (ionizing radiations -- X-rays, gamma-rays, etc., and equivalent radiations of elementary particles -- electrons, protons, neutrons, etc.).

Chemical: the direct effect of chemical agents delivered to the target area (traditional type of chemical effect); the effect of chemical agents formed directly in the target area from non-toxic or low-toxic components delivered to the target area; the effect of chemical agents formed directly in the target area from non-toxic media and substances present in the target area.

Biological: the use of micro-organisms (microbes, rickettsia, viruses, etc.), plants (parasitic fungi, weeds, etc.).

(b) Targets

Man: fluid media of the human organism (cytoplasm, blood plasma, lymph, etc.), cells, tissue, organs, regulatory systems, reproductive system, genetic transfer systems, biological defence systems (immunity thresholds for specific biological, chemical, radiological and other effects) and the behaviour (psychic, vestibular and other effects) of the human population as a whole.

Human environment: edaphic elements (soil, water bodies, etc.); biotic elements (crops and livestock constituting principal sources of food, foodstuffs derived from them); climatic elements; geophysical elements -- the lithosphere (crust, upper mantle), the hydrosphere, the troposphere (atmospheric circulation, hydrometeorology, composition, etc.), the stratosphere and upper atmosphere (ozone layer and other elements), terrestrial fields (gravitational, magnetic, electro-magnetic), near space (radiation belts, radiation and particle flux, etc.).

Man-made products: installations and networks vitally important for human existence.

(c) Nature of the effect

Mass annihilation of people and population, their degradation and extinction, large-scale permanent (irreversible) and temporary loss of certain human abilities, destruction and incapacitation of vitally important installations and networks.

3. Examples of new types of weapons of mass destruction

1. Infrasonic weapons emitting acoustic waves designed to injure human internal organs are a new type of weapon in so far as the target they are directed against (human internal organs -- for example, the cardio-vascular system), the means of producing the effect (infrasonic waves) and the nature of the effect (the death of a human being due to sudden cardio-vascular disfunction) are all new.

2. Weapons designed to damage the human reproductive system are a new type of weapon in so far as the target they are directed against (the genital system) and the nature of the effect (extinction as a result of sterilization) are new, though the effect may be produced by traditional methods.

3. Ethnic weapons using various agents for the selective extermination of specific ethnic population groups are a new type of weapon in so far as they produce a new type of effect (selective extermination of individual ethnic groups), though the target and means of producing the effect may be traditional.

4. Examples of new systems of weapons of mass destruction

Any system of weapons is the practical embodiment of a specific means of attack comprising a combination of strike and logistic elements. Such a combination may for example consist of a vector, the strike weapon itself, and means of control, communication, monitoring, etc.

A determining feature of the transition from a traditional system of weapons to a new system of weapons of mass destruction is the newness of its effect as mentioned in paragraph 2 (c). This may be the result of the incorporation in a traditional weapons system of a new technical element in the strike or logistic elements. For example, missile, artillery, aircraft or other traditional weapons systems may assume the character of a new system of weapons of mass destruction if they embody a new technical element such as fuel-air ammunition for producing powerful fuel-air explosions.